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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/745,029	12/20/2000	James E. Amonette	E-1899	8137

7590

04/23/2003

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EXAMINER

ROSENBERGER, RICHARD A

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 04/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/745,029

Applicant(s)

AMONETTE ET AL.

Examiner

Richard A Rosenberger

Art Unit

2877

~ The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) FROM  
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_ .
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_ .  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_ .
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .                      6) ☐ Other: .

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Byatt et al (US 6,161,426) in view of Saunders (US 3,727,049) and Chou (US 6,049,728).

Byatt et al teaches that "[p]hotoacoustic sensors for trace analysis in liquids and, in particular, of oil in water are known" (column 1, lines 40-41) and teaches, as is otherwise well-known, that photoacoustic measurement "is based on converting optical energy into acoustic energy by means of foreign molecules in liquids" (column 1, lines 45-46). Byatt et al teaches, as is well-known in this art, that in such photoacoustic measurements "the wavelength is selected in such a way that absorption is low in the medium and high in the foreign molecules" (column 1, lines 57-59).

Saunders teaches that it is known in the art to use spectroscopic methods to measure water in oil products such as fuel, see, for instance, column 1, lines 50-58), and teaches light as a wavelength of 2.9 micrometers is absorbed by water and not by the fuel.

The particular application of photoacoustic measurement shown by Byatt et al is measuring oil (as the "foreign molecules") in water (as the "medium"). However, it would have been obvious to use photoacoustic measurements with any foreign molecules in any liquid medium in which light of an appropriate wavelength can be found; Saunders teaches the region around 2.9 micrometers is such a known wavelength. Saunders mentions that there can be in measuring water in oil a problem with scattering of the light in conventional spectroscopic measurements (see column 3, lines 61-67). It is known in the art that photoacoustic measurements are immune from scattering; Chou, for example, teaches that photoacoustic measurements are "relatively immune to turbid conditions" (column 6, lines 47-48), noting "although the incident light may be diffused by scattering mediums . . . the optical absorption process continues as does the photoacoustic generation" (column 6, lines 48-51) so that "the photoacoustic response should remain nearly the same" (column 6, lines 53-54). Thus, given the teaching of Saunders that scattering can be a significant problem in measuring water in oil, those in the art would have been motivated to use a technique, such as a photoacoustic technique, which is known to be insensitive to such scattering. Although not explicitly discussed by the Byatt et al reference, this is further suggested by that reference, which teaches the use of photoacoustic measurement for oil in water, which, for the same reason that oil and water are immiscible, would

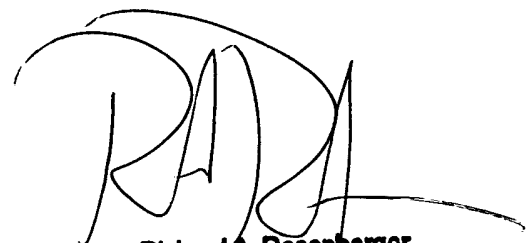
be expected to have the same "droplet problem" and light scattering problem recognized and taught by Saunders.

3. Papers related to this application may be submitted to Group 2800 by facsimile transmission. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The fax number is (703) 308-7722.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to R. A. Rosenberger whose telephone number is (703) 308-4804.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956.

R. A. Rosenberger  
13 March 2003



Richard A. Rosenberger  
Primary Examiner